

# Parotid Tumor Operations

## The Case Against Enucleation

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AS LONG as operation for removal of "encapsulated" parotid tumors is associated with the possibility of disastrous injury of the facial nerve, there will be a tendency on the part of many clinicians to delay definitive treatment and of surgeons to utilize the less frequently successful and often hazardous limited excision. This compromising attitude abides even though it is well recognized that delay in surgical treatment increases not only the difficulty of operation but the hazard of incurable spread, and despite the facts that enucleation is successful in not over 38 per cent<sup>2</sup> of cases and curettage almost never. In addition, both procedures, when they fail, result in a far worse clinical state than would have been the case if no operation had been done. This is because the parotid tumor is contained within a single unit space before operation, separated from the extraparotid structures and seventh nerve by complete protective fascial layers, but after limited operation the residual disease as it recurs in single or multiple foci comes into intimate contact with the branches of the facial nerve, with the surrounding sternocleidomastoid, digastric and masseter muscles and with the overlying skin. In fact, the entire "man-made" surgical field with all the surrounding exposed surfaces and tissues is a potential site for recurrent disease. Recurrence demands the removal of the entire previously made surgical field including the adherent nerves, muscles and skin. Not only is this operation associated with a greatly multiplied hazard to the seventh nerve, but in spite of the ultimately more radical procedure the chance of successful extirpation of the parotid neoplasm is less than it would have been if radical operation had been done in the first place. In addition, not infrequently, radiation therapy is given in a vain attempt to overcome the original surgical inadequacy even though radiation may not be indicated and may increase the patient's discomfort and entail cosmetic and functional deformity.

### RATIONALE

The danger of any procedure less than subtotal parotidectomy in the management of parotid tumors

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• So-called mixed "encapsulated" parotid tumors are best managed by surgical procedures which avoid contact with the "capsule." Enucleation is often a hazardous and incomplete procedure. Subtotal or total parotidectomy with exposure of the facial nerve to avert accidental damage to it is the treatment of choice.

Microscopic study of the periphery of such tumors reveals that the "capsule" does not fully encapsulate; hence, enucleation and lesser procedures may leave neoplastic tissue behind.

Surgical procedures to achieve complete excision without endangering the facial nerve were carried out in 123 cases. There was local recurrence in one case.

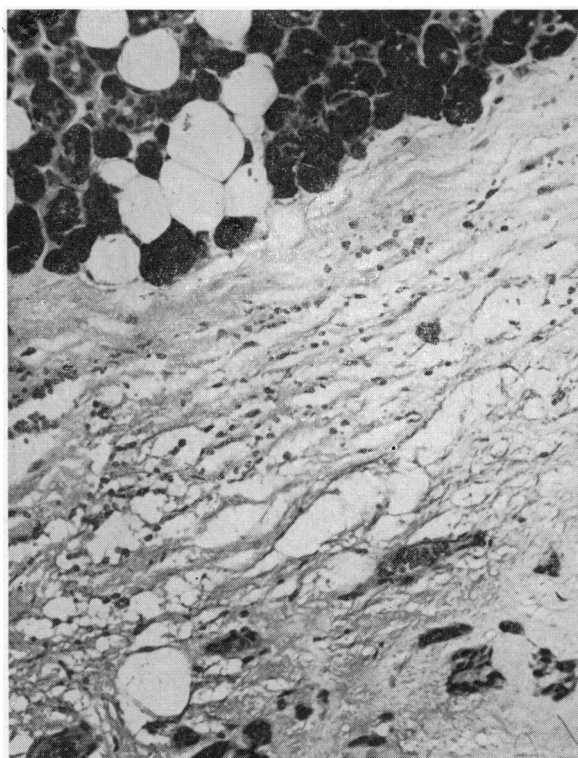


Figure 1.—(X200) Reveals no barrier or "capsule" between tumor and parotid. In fact the cell-containing mucinous-like fibers naturally fuse with tumor on one side and contact the parotid gland on the other. Therefore it is impossible to separate the two by going between tumor and parotid gland without leaving some tumor attached to the parotid gland in many places. This shows how this tumor could be "enucleated" and yet not be completely extirpated.

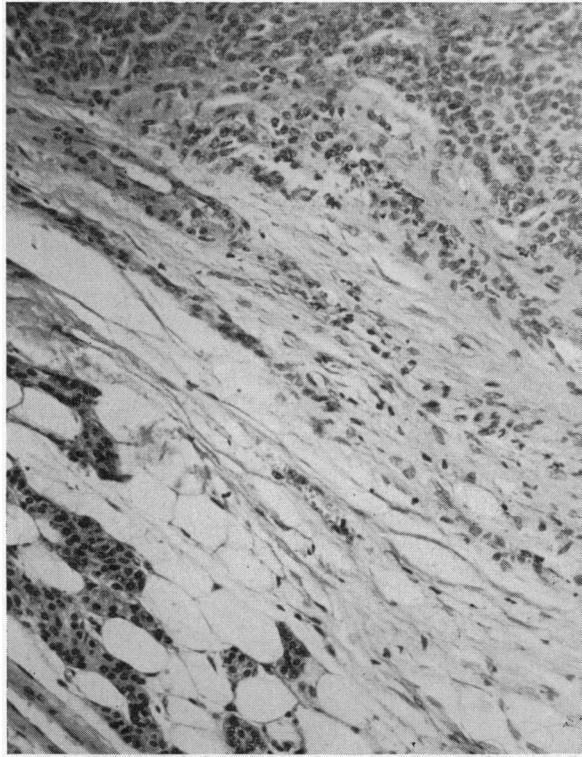


Figure 2.—( $\times 200$ ) Shows loose and compressed hyalinized fibers containing many spaces and cells representing a reactive fibrous stroma of the host rather than a specific fibrous layer which could be called either a "capsule" or a fascial layer. Here a tongue of tumor could easily be broken off and left as a nidus for future recurrence.

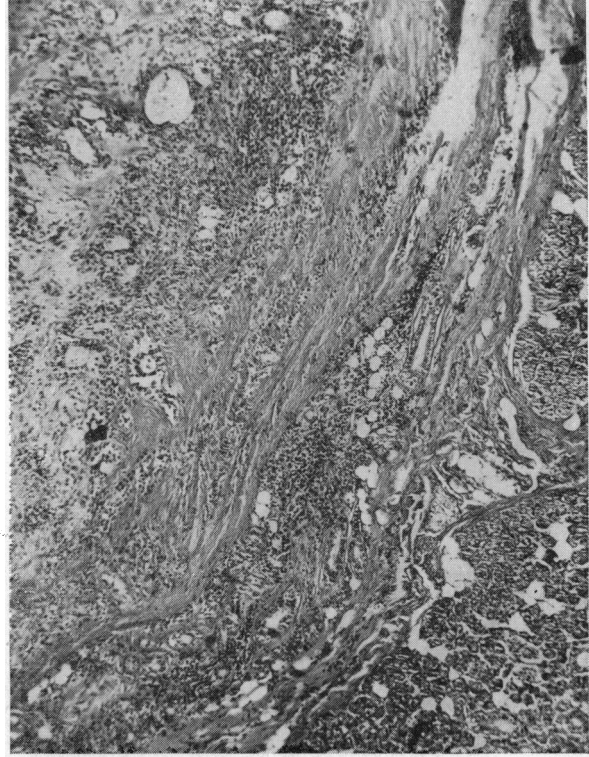


Figure 3.—( $\times 120$ ) Here tumor cells are seen in the center of the fibrous septum between the main body of the tumor and the parotid gland. In addition the fallacy of the so-called "capsule" is well illustrated here since the peritumoral fibrous stroma is seen to be a continuation of the regular fibrous septa separating the parotid gland lobules.

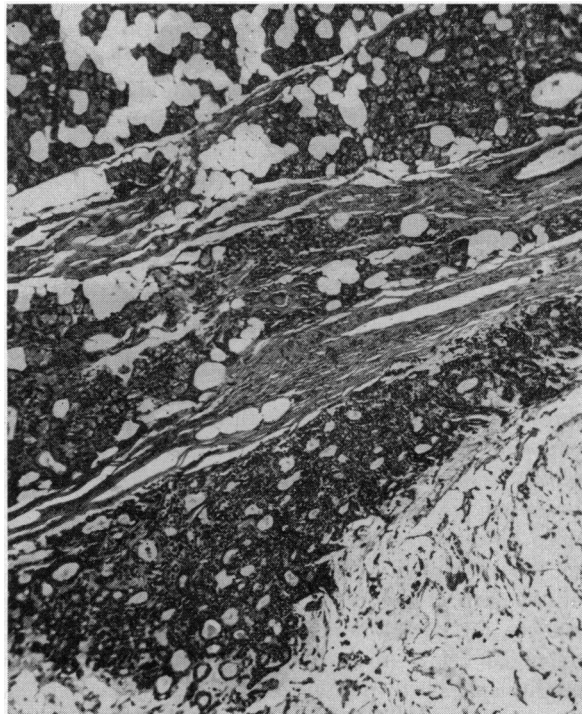


Figure 4.—( $\times 120$ ) This shows the fallacy of the "capsule." The artificial cleavage plane is well demonstrated.

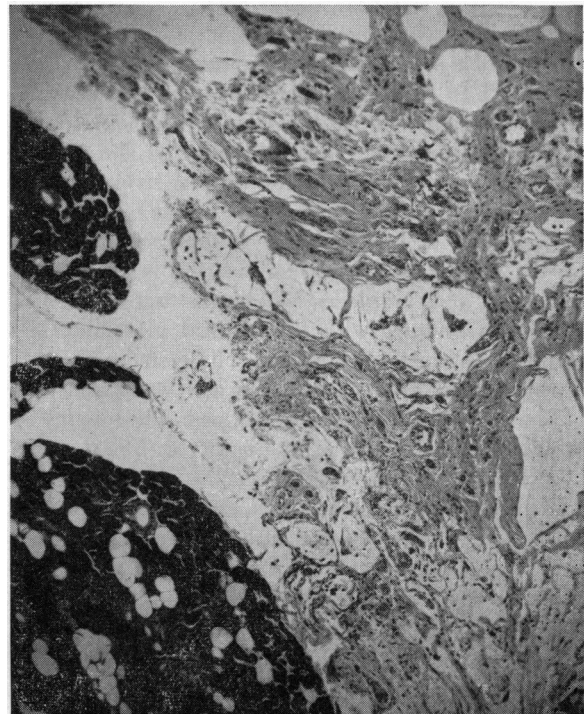


Figure 5.—( $\times 120$ ) This section reveals tumor tissue in contact with parotid gland with no intervening "capsule."

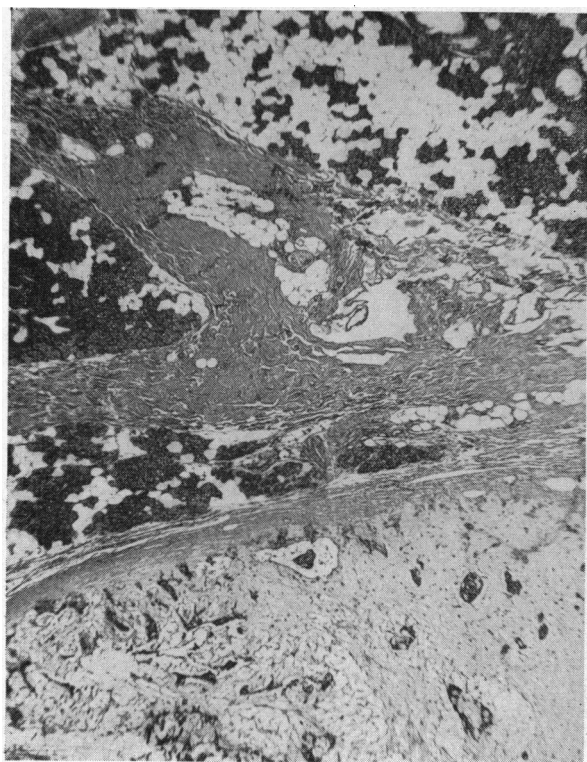


Figure 6.—( $\times 60$ ) This section demonstrates the fallacy of the “capsule” and shows that the covering of the tumor is only a continuation of the interlobular fibrous septa of the parotid gland. Here the septal band between the parotid lobules is many times thicker than the very thin one surrounding the tumor.

is well illustrated by microscopic study of the periphery of a so-called “encapsulated” neoplasm (see Figures 1 to 7). The tumor “capsule” is not a specifically organized tissue such as an enveloping fascia or a glandular cortex.<sup>3</sup> Rather, it is a greater or lesser condensation of the fibrous stroma of the host tissue (the parotid salivary gland) and it develops more or less inversely to the rate of growth of the tumor. This fibrous barrier is of uneven thickness and in places where the tumor is intimately in contact with the parotid glandular elements it is practically absent. The elements of this fibrous “capsule” are continuous with and extensions of the fibrous septa present between the lobules of the gland, thus revealing its identity as a part of the host stroma. In addition to the intimate points of contact between the gland and the tumor, islands of connected or disconnected tumor tissue can be seen in the interstices between the fibrils of the tumor “capsule” or on its glandular side.

The histopathologic features are such that enucleation procedures must be hazardous if not utterly futile.

To excise these tumors adequately, the fibrous “capsule” must be entirely removed, and in order



Figure 7.—( $\times 120$ ) A recurrent case with several nodules of tumor tissue. Here two recurrent nodules are seen connected by a thicker fibrous band but with thinner surrounding fibrous septa between them and the parotid gland tissue. This definitely shows the impossibility, in recurrent cases, of safely enucleating the recurrent nodules.

to do this completely a “shell” of parotid glandular tissue must be excised with the tumor. To do this without injury to the seventh cranial nerve, the nerve is first isolated by whatever means the surgeon chooses. It is traced along all its ramifications toward the tumor-containing portion of the parotid gland. As this is done the superficial lobe will be completely freed, and if the tumor is within it the lobe can then be safely transected well beyond the palpable margin of the contained tumor without injuring the nerve branches in the vicinity, since they already have been dissected out and are easily seen. If the tumor is in the deep lobe, this procedure will first safely remove all the superficial lobe, exposing the deep lobe, which can then be completely removed without danger to the facial nerve branches, which are exposed and visible. Often with deep lobe tumors the nerve branches lie very close to the overlying skin because of the pronounced attenuation of the superficial lobe. In such circumstances the facial nerve easily could be seriously damaged by a direct surgical approach to what might appear to be a very superficially placed tumor. Although the nerve fibers in these conditions are often tautly stretched over the tumor, they can

be saved by careful and tedious dissection and further stretching beyond the periphery of the deep lobe tumor to permit removing it completely. If the tumor is partially sequestered, the enveloping fascia between it and the extrinsic tissues and facial nerve is an adequate protective barrier and a safe plane for dissection if it has not been opened by previous inadequate surgical procedures.

#### RESULTS

In the period 1947 to 1955, 123 patients with parotid tumors were primarily treated by the technique described. The period of observation after operation ranges from one month to eight years—over three years in 62 cases and over five years in 33 cases. There was only one instance of local recurrence. In that case a diagnosis of adenocarcinoma was made at the time of the primary excision and the recurrence appeared in the external auditory canal.

#### DISCUSSION

Frequently it is stated that recurrence following operation for removal of a parotid tumor is owing to the presence of multiple primary foci. There is no clinical or histologic proof of this. In a review of the literature only a few exceptional instances were noted of simultaneous multiple or bilateral

mixed "encapsulated" parotid tumors which were present before the first surgical intervention.\* Sequestered tumors present in contact with the primary lesion or attached lobulations are, of course, single tumors and the suggested primary surgical management in these instances should result in equally satisfactory results.

Mention might also be made of the futility of pre-operative irradiation in order to toughen the parotid tumor "capsule" so that the growth can more safely be "shelled out." Such radiation, if successful, would equally tend to toughen the normal glandular interlobular septa which fuse intimately with the so-called "capsule." Subsequent enucleation then would tend to be even less complete than it might have been if the fibrous connections between the tumor, its "capsule" and the normal parotid gland were less toughened.

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#### REFERENCES

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2. McFarland, J.: The histopathologic prognosis of salivary gland mixed tumors, *Am. J. M. Sc.*, 203:502-519, 1942.
3. Perzik, S. L.: Facial nerve paresis in parotid surgery, *Surgery*, 36:751-761, 1954.

\*In the present series there was one case of multiple mixed tumors. Frazell<sup>1</sup> in a review of 877 cases reported no instance of primary multicentricity.

